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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,386	11/12/2003	Gary Wentworth	27702/10047C-1	6381
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MARSHALL, GERSTEIN & BORUN LLP 233 S. WACKER DRIVE, SUITE 6300 SEARS TOWER CHICAGO, IL 60606			POULOS, SANDRA K	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,386

Applicant(s)

WENTWORTH ET AL.

Examiner

Sandra K. Poulos

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/12/04; 6/19/04; 9/14/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

1. Claims 8-13, 18, 20, 22 and 35 are objected to because of the following informalities:
 - a. Claim 6-9, 11, and 12: The term "on average" is objected to. For example, at the top of page 40, the term "on average" in the phrase "on average, at least two" is unclear because it's not known if the if R must be two or more $-\text{CH}_2\text{-R}^1$ or if R is sometimes only one $-\text{CH}_2\text{-R}^1$.
 - b. In Claim 10 it is unclear if both compounds are required or only one.
 - c. Claim 13: The parentheses in claim 13 are improper.
 - d. Claim 18: Formula (I) is already defined as a different chemical in claim 1 and should not be re-used to define a different chemical in dependent claim 18. R^1 was also previously defined in claim 1.
 - e. Claims 20 and 22: R^1 was previously defined in claim 1 and the R^1 in claims 20 and 22 are drawn to a different chemical.
 - f. Claim 35 contains CAS# of the dimer, which is improper. Please replace with the name of the compound intended.

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Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Five (5) obviousness-type double patenting rejections are set forth below.

Double Patenting, I

3. Claims 1-45 and 48 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-57 of copending US Application No. 10/706,196 (published as US 2004/0127615). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US Application No. 10/706,196 discloses a thermoplastic polymer or thermoplastic polymer alloy and adhesion promoter comprising an adhesive resin and an ester. Claims 43-44 and 55-56 disclose the use of reactive diluents.

The differences between the present claims and the claims of 10/706,196 are (1) the present claims refer to a “vulcanized rubber composition” while the claims of 10/706,196 refer to a “thermoplastic polymer” or “thermoplastic polymer alloy”, and (2) the claims of 10/706,196 do not refer to the reactive diluent in the independent claim.

Applicant’s attention is drawn to M.P.E.P. § 804 where it is disclosed that “the specification can always be used as a dictionary to learn the meaning of a term in a patent claim.” *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of 10/706,196 discloses that the thermoplastic alloy comprises a natural or synthetic rubber that may be vulcanized (pg 22). Therefore, it would have been obvious that the “polymer alloy” in the claims of 10/706,196 can be a “vulcanized rubber” and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the specification of 10/706,386 discloses that when reactive diluents are added to the composition, there is an unexpected increase in the adhesion of the rubber composition to substrates such as cords and are typically added in amounts between 0.5 to 50 wt%, usually between 5 to 40 wt% (pg 4-8). Therefore, it would have been obvious to add the reactive diluents to the composition claimed in

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10/706,386 because the specification indicates that there is a beneficial increase in adhesion.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1-45 and 48 are directed to an invention not patentably distinct from claims 1-57 of commonly assigned copending US Application No. 10/706,196. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 3 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending US Application No. 10/706,196, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon

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the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Double Patenting, II

5. Claims 1-45 and 48 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-88 of copending US Application No. 10/718,233 (published as US 2004/0122145). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US Application No. 10/718,233 discloses a sealant composition with an adhesion promoter comprising an adhesive resin and an ester. Claims 46-47 and 64-65 disclose the use of reactive diluents. Claim 48 discloses a curing agent for the sealant comprising a polymer, and claim 50 discloses the polymer as butyl rubber.

The differences between the present claims and the claims of 10/718,233 are (1) the present claims refer to a "vulcanized rubber composition" while the claims of 10/718,233 refer to a "sealant", and (2) the claims of 10/718,233 do not refer to the reactive diluent in the independent claim.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an

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application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of 10/718,233 discloses that the sealant may comprise butyl rubber and that generally curing agents which cause cross linkages to form between the polymer are used in the composition (para 3-4). Furthermore, dependent claims 48-50 disclose butyl rubber and a curing agent present in the sealant composition. Therefore, it would have been obvious that the "sealant" in the claims of 10/718,233 include "vulcanized rubber" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the specification of 10/718,233 discloses that when reactive diluents are added to the composition, there is an increase in the adhesion to substrates and acts as a compatibilizer and is present amounts between 0.5 to 50 wt%, usually between 5 to 40 wt% (pg 11). Furthermore, dependent claims 46-47 and 64-65 disclose the reactive diluents. Therefore, it would have been obvious to add the reactive diluents to the composition claimed in 10/718,233 because the specification indicates that there is a beneficial increase in adhesion.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 1-45 and 48 are directed to an invention not patentably distinct from claims 1-88 of commonly assigned copending US Application No. 10/718,233.

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Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 5 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending US Application No. 10/718,233, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Double Patenting, III

7. Claims 1-48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-49 of US Patent 6,858,664 in view of Huyuh-Tran et al (US 2003/0166743). Although the conflicting claims are not

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identical, they are not patentably distinct from each other because of the following explanation.

US 6,858,664 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,858,664 are (1) the present claims refer to "vulcanized rubber" while the claims of US 6,858,664 refer to "rubber", and (2) the claims of US 6,858,664 do not refer to a reactive diluent.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), throughout the specification of US 6,858,664 there is made reference to vulcanized rubber and vulcanizing agents are disclosed (col 4, line 2, 60; col16, lines 25-35, 66-67; col 17, lines 24-46; col 18, lines 13-25, col 20, lines 12-36), therefore it would have been obvious that the rubber in the claims of US 6,858,664 would have been vulcanized or contained a vulcanizing agent and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), Huyuh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33).

It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in US 6,858,664 to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

8. Claims 1-48 are directed to an invention not patentably distinct from claims 1-49 of commonly assigned US 6,858,664. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 7 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,858,664 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In

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order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Double Patenting, IV

9. Claims 1-45 and 48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-52 of US Patent 6,969,737 in view of Huyuh-Tran et al (US 2003/0166743). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,969,737 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,969,737 are (1) the present claims refer to "vulcanized rubber" while the claims of US 6,969,737 refer to "rubber", and (2) the claims of US 6,969,737 do not refer to a reactive diluent.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), throughout the specification of US 6,969,737 there is made reference to vulcanized rubber and vulcanizing agents are disclosed (col 3, line 53; col 4, lines 36-38; col 10, lines 48-55; col 14, lines 58-67; col 15, lines 51-67; col 16, lines 1-4), therefore it would have been obvious that the rubber in the claims of US 6,969,737 would have been vulcanized or contained a vulcanizing agent and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), Huyuh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33).

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It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in US 6,969,737 to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

10. Claims 1-45 and 48 are directed to an invention not patentably distinct from claims 1-49 of commonly assigned US 6,969,737. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 9 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,969,737 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon

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the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Double Patenting, V

11. Claims 1-45 and 48 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of US Patent 6,884,832 in view of Huyuh-Tran et al (US 2003/0166743). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,884,832 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,884,832 are (1) the present claims refer to "vulcanized rubber" while the claims of US 6,884,832 refer to "rubber" with a "vulcanizing agent", and (2) the claims of US 6,884,832 do not refer to a reactive diluent.

With respect to (1), the combination of the rubber and the vulcanizing agent would result in a vulcanized rubber, therefore it would have been obvious that there is vulcanized rubber disclosed in the claims of US 6,884,832 thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), Huyuh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-

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formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33).

It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in US 6,884,832 to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

12. Claims 1-45 and 48 are directed to an invention not patentably distinct from claims 1-46 of commonly assigned US 6,884,832. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 11 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,884,832 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned

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at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 6-17, 21, 27-29 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 14-17, and 21 recite "derivatives" which is indefinite since metes and bounds of coverage sought by applicant are unclear.

Claims 13 and 48 recite improper Markush groups. Please amend to "selected from the group consisting of..." rather than "selected from...".

Claim 26 is unclear because it is not known which ester is being referred to.

Claims 7-12 and 27-29 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 103

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14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 34, 39-43 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky et al (US 5,985,963) in view of Oshiyama et al (US 4,789,381) and Huynh-Tran et al (US 2003/0166743).

D'Sidocky discloses rubber compositions that exhibit good adhesion properties to aramid reinforcements in the tire (abstract, col 1, lines 5-15). The composition

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comprises natural and synthetic rubbers such as polyisoprene and polybutadiene (col 2, lines 61-67; col 3, lines 1-43).

The composition comprises an adhesive resin that is a condensate of methylene donor and acceptor. Acceptors include phenolic resins such as novolak and donor comprises amine such as melamines having formula IV which correspond to the presently claimed (col 7). Methylene donor is present from 0.1-10 phr (col 7, lines 47-51) and can be N-substituted oxymethylmelamines (col 7, lines 20-40). Additionally, Table 1 discloses methylene ester of rosin wherein rosin has 19 carbon atoms. Although ester of rosin is disclosed as a tackifier, its adhesive properties are intrinsic to the compound since tackifiers have adhesive properties. Fillers include calcium silicate (col 3, lines 57-65). The composition is heated and mixed (col 8, lines 43-67) and thus is in a melted state.

D'Sidocky does not disclose (1) esters that meet the requirements of the formulae in the present claims, or (2) reactive diluents.

With respect to (1), Oshiyama discloses a fiber treating process for which is suitable for tire cords (abstract; col 4, lines 16-22). The fiber is pretreated with ester that is the reaction product of polybasic carboxylic acid and alcohol of formula 1 (abstract; col 2). The repetitive units (AO) is zero in the examples of alcohols given in Table 1. Furthermore, Oshiyama discloses polybasic acids including adipic and sebacic acid (col 1, lines 40-45). Thus, the formulae in Table 1 satisfy the esters in formula 1-2 of the present invention.

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The composition of Oshiyama uses esters to pre-treat the fibers that are later used in tire cords. It is well settled that it is prima facie obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972).

In light of the above, it would have been obvious to one of ordinary skill in the art to use the esters of Oshiyama in the composition disclosed by D'Sidocky and thereby obtained the presently cited claims. Use of the esters of Oshiyama would still provide a composition having good adhesion properties to the tire cords.

With respect to (2), Huyuh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33).

It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in Singh and Oshiyama to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

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16. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky in view of Oshiyama and Huynh-Tran as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 34, 39-43 and 48 above, and further in view of Solomon (US 4,448,813).

The discussion with respect to the disclosures of D'Sidocky and Oshiyama and Huynh-Tran in paragraph 15 above is incorporated herein by reference.

The composition disclosed by D'Sidocky in view of Oshiyama and Huynh-Tran does not disclose the use of resorcinol-formaldehyde resins.

Solomon discloses adhesive activated polyester cord, or an aramid cord, treated with polyisocyanate, a resorcinol-formaldehyde condensate, a rubber latex, and an acrylic resin (col 3, lines 63-68). Solomon discloses the use of melamines and resorcinol formaldehyde resin wherein the condensation product is an adhesive resin.

It would have been obvious to one of ordinary skill in the art to additionally use resorcinol formaldehyde resin as the adhesive resin because Solomon discloses that the resin is beneficial to the process of making tires that are made with cords treated with resorcinol-formaldehyde resin.

17. Claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 26-27, 29 34, 39-45 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (US 5,298,539) in view of EP 1022306 and Huynh-Tran et al (US 2003/0166743).

Singh discloses additives for improving tire cord adhesion and toughness of vulcanized rubber compositions using derivatives of melamine, acetoguanamine, and benzoguanamine (abstract; col 1, lines 33-45). Melamine based derivatives and

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glycoluril oligomers have the formulae given in columns 2-3. The adhesion promoter additives are present in the range of 0.2 to 10 phr (col 4, lines 8-11). The rubber is natural or synthetic rubber such as polyisoprene and polybutadiene, with a vulcanizing agent such as sulfur (col 4, lines 11-15). The composition can be used with resorcinol or without (col 1, lines 16-20; col 4, lines 55-66). The composition can be used to improve rubber products made with fabrics or polyester or steel cords (col 19, lines 17-31).

Singh does not expressly disclose (1) a flat metal stock substrate. (2) esters that meet the requirements of the formulae in the present claims, (3) reactive diluents.

With respect to (1), Singh discloses that the substrate can be steel cords. It would have been obvious to one of ordinary skill that the substrate could be a metal of different shape, such as a flat sheet rather than a cord since the adhesion to the metal would remain unchanged.

With respect to (2), EP 1022306 discloses a vulcanized rubber composition comprising 0.2 to 20 parts (preferably 0.5 to 5 parts) of an ester compound obtained by reaction of alcohols with a fatty acid (para 13, 15, 17-19, 30). The rubber can be natural rubber, styrene butadiene rubber, polybutadiene rubber, and isoprene rubber or combinations (para 16). The rubber composition is excellent in adhesion between vulcanized rubber and steel and the like without deteriorating mechanical properties after vulcanization and has good processability (para 1). The alcohols used in the composition include 2-ethylhexyl alcohol and oleyl alcohol (para 23-29). The fatty acid includes castor oil fatty acid or safflower oil fatty acid (para 19-22). Castor oil is mainly

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comprised of a C₁₈ unsaturated fatty acid. The benefits of using the ester of a fatty acid are discussed in paragraphs 35-39.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ester fatty acid of EP 1022306 into the composition of Singh in order to improve adhesion to rubber composition, which is a common objective for both references. Furthermore, it is well settled that it is *prima facie* obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972).

With respect to (3), Huynh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33).

It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in Singh and EP 1022306 to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

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18. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (US 5,298,539) in view of EP 1022306 and Huynh-Tran et al (US 2003/0166743) as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 26-27, 29 34, 39-45 and 48 above, and further in view of Solomon (US 4,448,813).

The discussion with respect to the disclosures of Singh and EP 1022306 and Huynh-Tran in paragraph 17 above is incorporated herein by reference.

The composition disclosed by Singh in view of EP 1022306 and Huynh-Tran does not disclose the use of resorcinol-formaldehyde resins.

Solomon discloses adhesive activated polyester cord, or an aramid cord, treated with polyisocyanate, a resorcinol-formaldehyde condensate, a rubber latex, and an acrylic resin (col 3, lines 63-68). Solomon discloses the use of melamines and resorcinol formaldehyde resin wherein the condensation product is an adhesive resin.

It would have been obvious to one of ordinary skill in the art to additionally use resorcinol formaldehyde resin as the adhesive resin because Solomon discloses that the resin is beneficial to the process of making tires that are made with cords treated with resorcinol-formaldehyde resin.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leo et al (US 4,263,184) discloses a composition is used as a reinforcement and in synthetic cord and fabric to increase modulus and tensile strength in tires comprised of rubbers or plastics such as polyvinyl chloride with plasticizers including esters of sebacic and adipic acids. Adhesion promoters can be added to the mixture to enhance

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adhesion between the fibrous material and rubber or plastic compound such as resorcinol-formaldehyde.

Marhevka et al (US 5712039) discloses reactive diluents with epoxy adhesives.

Hopper et al (US 5,777,014) discloses a PVC resin composition with diacid plasticizers in amounts greater than 20 phr.

Hawley's Condensed Chemical Dictionary: chemical information with respect to castor oil and safflower oil.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:30-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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